

# Kodak Professional Notes

For Registered Owners of:  
Kodak Color, Industrial, and Professional Handbooks

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## KEYS TO COLOR PRINTING, Part IX

### ("Cookbook" Color Printing)

DID YOU KNOW that good Type C prints can be made the easy "recipe" way with only two colors of filters, if you wish? Here's the system: First, note that this particular recipe will work only with negatives on Kodacolor\* or Kodak Ektacolor, Type S, Film exposed with the recommended filters or with clear flash. Color negatives exposed by other light sources, such as daylight without a filter, might print outside the range covered in the table on page 26.

Then, if you have an ordinary tungsten enlarger, obtain these thirteen filters:

Kodak Wratten No. 2B; Kodak Color Compensating CC-05M, CC-10M, CC-20M, CC-30M, CC-40M, CC-50M, CC-05Y, CC-10Y, CC-20Y, CC-30Y, CC-40Y, and CC-50Y.

If your enlarger is the kind with a "color head" which permits you to in-



sert filters between the negative and the light source, you'll need the large filter sheets in the size to fit your enlarger. If, on the other hand, you have to use filters under the enlarger lens, probably the 2-inch square size will be adequate.

In any case, always use the least number of individual filters that you can to produce a desired filtration. This is only important for the under-the-lens situation where the image sharpness decreases with any increase in the number of filters. Four *clean* filters is about the maximum number you should attempt to use *under* the lens, but it makes no difference, from a definition standpoint, how many filters you use *above* the negative. However, if you use more filters than are shown in the following table, it will invalidate the listed exposure factors.

\*No filter is necessary in daylight for negatives that will be printed by photofinishers. A Kodak Wratten Filter No. 85C is recommended if you make your own Type C prints and you want your outdoor negatives to print with the same enlarger balance as your indoor flash shots.

Here are the steps to follow:

**Step 1** For the first trial exposures, place these filters in your enlarger's optical system: CC-50M, CC-50Y, and the Wratten 2B. Leave the Wratten 2B in the enlarger all the time; see if you can't find some way of putting it underneath the heat-absorbing glass in your enlarger, even if no color-head type of filter slot is available. This will make one less filter to handle and will put it up above the negative, which is the most desirable location anyway. You can now forget about this particular filter and we will not mention it again.

**Step 2** Make a print by using the ordinary test-strip series of staggered exposures. This exposure series will obviously let you choose the proper printing time. Be sure to make a note of the actual number of seconds which results in the desired density level.

**Step 3** Judge the finished print for color balance. Look at "sensitive" areas,

such as neutral objects or flesh tones. Ask yourself: (a) *Which color is there in excess*; in other words, would you say the print is too red, green, blue, cyan, magenta, or yellow? (b) *How much is the print off balance*; very slightly, slightly, quite a bit, a lot, or very much?

**Step 4** To find what filter combination to use in your enlarger for making a better print, relate your Step 3 guesses to the table below. Replace the previously used combination, and make a new print. *In making up the new combination, be sure to use the fewest possible filters.*

**To keep about the same density level as you used for the best test-strip exposure, apply the percentage exposure factor associated with the new filter combination.**

For example, if you found that 20 seconds was right with the CC-50M + CC-50Y starting point, the new exposure

## For prints made with CC-50M+CC-50Y+No. 2B Filters

If Print is too \ Amount	Very Slightly	Slightly	Quite a bit	A Lot	Very Much
<b>Red</b>	55M + 55Y (4 filters) + 25%	60M + 60Y (4 filters) + 35%	70M + 70Y (4 filters) + 60%	80M + 80Y (4 filters) + 80%	90M + 90Y (4 filters) + 100%
<b>Green</b>	45M + 50Y (3 filters) + 5%	40M + 50Y (2 filters) - 10%	30M + 50Y (2 filters) - 20%	20M + 50Y (2 filters) - 30%	10M + 50Y (2 filters) - 40%
<b>Blue</b>	50M + 45Y (3 filters) + 10%	50M + 40Y (2 filters) no change	50M + 30Y (2 filters) no change	50M + 20Y (2 filters) no change	50M + 10Y (2 filters) - 5%
<b>Cyan</b>	45M + 45Y (4 filters) + 15%	40M + 40Y (2 filters) - 15%	30M + 30Y (2 filters) - 25%	20M + 20Y (2 filters) - 30%	10M + 10Y (2 filters) - 40%
<b>Magenta</b>	55M + 50Y (3 filters) + 15%	60M + 50Y (3 filters) + 25%	70M + 50Y (3 filters) + 40%	80M + 50Y (3 filters) + 65%	90M + 50Y (3 filters) + 85%
<b>Yellow</b>	50M + 55Y (3 filters) + 10%	50M + 60Y (3 filters) + 10%	50M + 70Y (3 filters) + 10%	50M + 80Y (3 filters) + 10%	50M + 90Y (3 filters) + 15%



would be 27 seconds if you used, instead, the CC-60M + CC-60Y combination, a 35 percent increase as indicated in the table. These suggested exposure adjustments are based on your having twelve Color Compensating Filters, including the CC-50M + CC-50Y, so that you can make each filter combination by using the number of individual filters given in the table. Also, the suggested exposure compensations can be expected to give density control only if clean, scratch-free filters are used.

**Step 5** The print you made in Step 4 should be a good print, depending, of course, on the accuracy of your evaluation. It may be that on your next try, from the standpoints of exposure and/or color balance, you can make an even better print.

If it's only a matter of exposure, we're sure you realize that a dark print is overexposed; a light print, underexposed.

If it's still a matter of color balance, again ask yourself which color is in excess. Probably this time the amount will be small. Be guided by the principles contained in the table below, which apply of course to any "final print" adjustment.

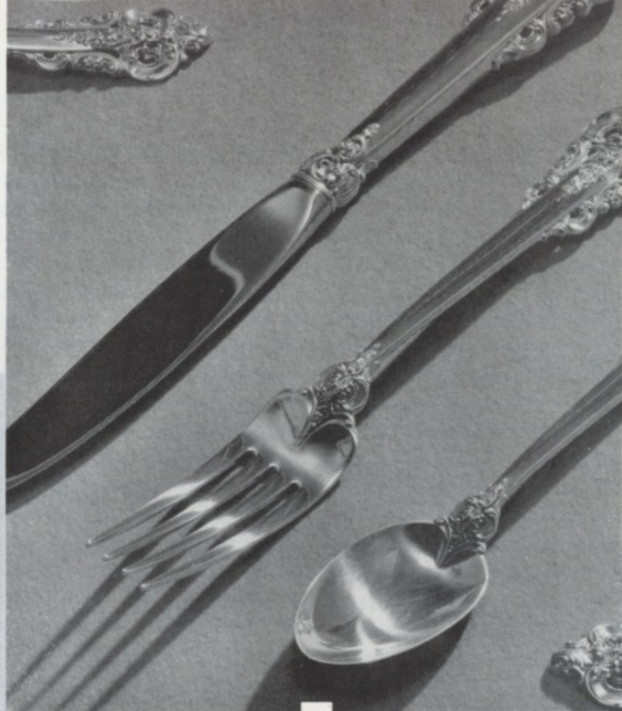
*Note:* This "cookbook recipe" is based on the use of an enlarger with a tungsten light source and with heat-absorbing glass. If you use some other light source, such as fluorescent lamps, you will need some additional "fixed" filters, along with the 2B. For instance, with the Kodak Fluorite Enlarger A, you would need two CC-50R filters plus a CC-30Y filter, in addition to those listed in the "recipe."

This is the final article in the "Keys to Color Printing" series. All of this Type C color-printing information, and much more besides, will appear in a few months in a new Kodak Data Book. Watch for it at your local Kodak dealers.

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## To change any filter pack, do this

<b>Amount of If Print Desired Change is too</b>	<b>Very Slightly (CC-05)</b>	<b>Slightly (CC-10)</b>	<b>Quite a bit (CC-20)</b>	<b>A Lot (CC-30)</b>	<b>Very Much (CC-40)</b>
<b>Red</b>	Add 05M + 05Y	Add 10M + 10Y	Add 20M + 20Y	Add 30M + 30Y	Add 40M + 40Y
<b>Green</b>	Subtract 05M	Subtract 10M	Subtract 20M	Subtract 30M	Subtract 40M
<b>Blue</b>	Subtract 05Y	Subtract 10Y	Subtract 20Y	Subtract 30Y	Subtract 40Y
<b>Cyan</b>	Subtract 05M + 05Y	Subtract 10M + 10Y	Subtract 20M + 20Y	Subtract 30M + 30Y	Subtract 40M + 40Y
<b>Magenta</b>	Add 05M	Add 10M	Add 20M	Add 30M	Add 40M
<b>Yellow</b>	Add 05Y	Add 10Y	Add 20Y	Add 30Y	Add 40Y





# Reflections on Reflections

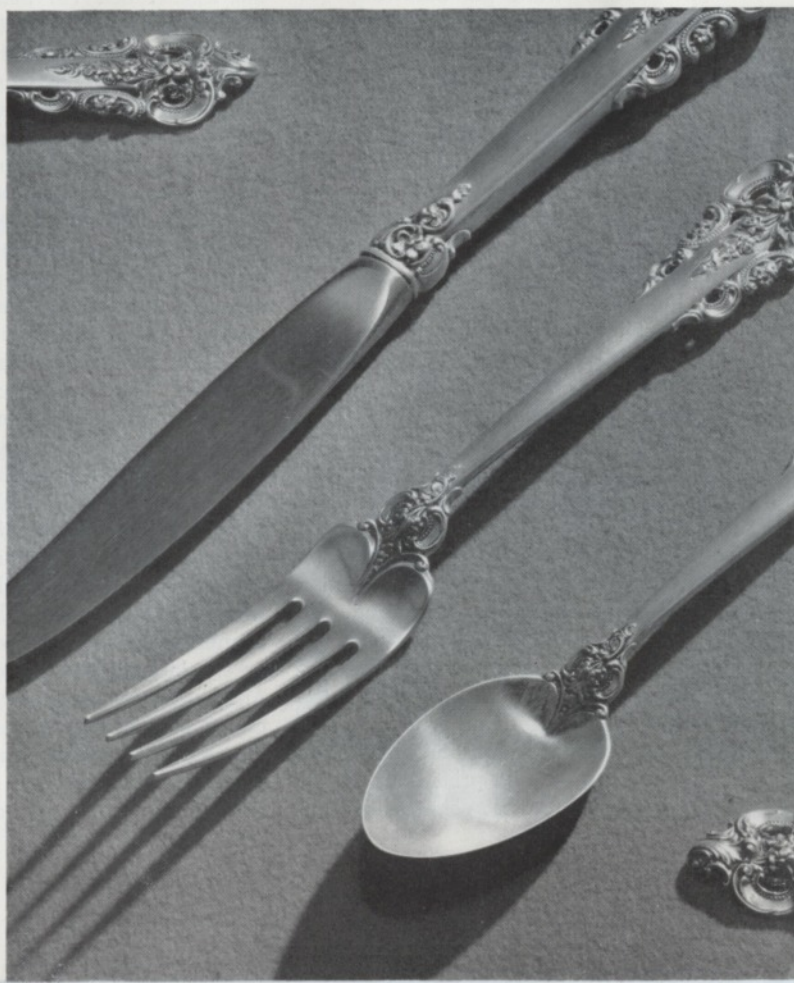
IT'S THE OLD PROBLEM of photographing shiny metal objects, but this time, perhaps, with a new answer for you. When we talked with our photographers recently, they advised us as follows:

"Don't spray anything you have to return to the owner. Dulling or matting sprays may damage certain finishes. Besides, they're difficult to control. That is, it's hard to confine them to just the shiny edge of an object, for example.

"We found that a cosmetic liner available as Elizabeth Arden Screen and Stage Make Up, Number 12, works very

well for this purpose. It's easily applied with a wide camel's-hair brush wherever you wish and in whatever quantity is necessary to control the highlights. If you happen to get too much on, it can be 'brushed out' or partially wiped away with a cloth. We use it for plastic, glass, and leather subjects, as well as those of polished metal. It works fine for tiny objects, such as screws, gears, or what have you. The other day we took a picture of a happy young couple in a convertible, and the liner was just the thing for subduing the chromium."

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# PHOTO drawings

*for industrial photographers*

*New way to win friends, influence people*

*Dear Pete*

New twist! I'm writing to tell you how you, too, can win friends in the drafting department, influence chief engineers. The secret can be summed up in one word—photodrawing (or "photodrafting," as our boys call it).

What are photodrawings, you say? Well, they're simply a method of making and using photographs which show dimension, position, identification, and spatial-relationship information — just like engineering drawings, but with really significant savings in time and money, plus a better understanding by the user.

Let me quote from the technical how-to-do-it report I turned in to the boss:

"Every photodrawing begins with a photograph. Sometimes an existing photograph can be used, but it may be better to have the plant photographer make a photograph especially for this purpose.

"For Direct-Process Reproduction. If multiple distribution copies are to be made by direct process reproduction methods, such as diazo printing, the continuous-tone negative is used to produce a screened positive transparency, i.e., a positive image on film in the form of a halftone. One of the simplest methods for accomplishing this is to contact or projection print the negative onto Kodalith Autoscreen Ortho Film,

which has built-in 133-line halftone screening properties.

"If the photodrawing is to be reproduced on a standard drawing form, a blank form is reproduced on Kodagraph Autopositive Film. This should consist of only the border lines of the drawing, the legend box (in blank), and the usual company identification, logotype, etc. Many photo departments doing photodrawing work regularly keep in stock a supply of these pre-exposed, but undeveloped, blank forms on Kodagraph Autopositive Film. The center part of the film is protected by an opaque mask during the exposure of the form lines. When someone is ready to make a photodrawing, a paper mask is prepared for the halftone positive or positives which are then exposed onto the film already bearing the latent image of the drawing form. Development then produces the master or intermediate reproducible on matte-acetate film base ready for drafting.

"A set of Autopositive Film copies of the blank drawing forms for each drawing size can be made and stocked in finished form (processed and dried). In this instance, the halftone positive or positives are attached with transparent tape to the Autopositive Film. Another Autopositive copy is then made of this composite, and it is on this that the drafting work is done. After completion of the drafting, this copy is ready for use as the reproduction master



from which the direct process prints can be made. The original film copy of the form can be re-used for other photodrawings.

"The drafting work is done with either pencil or pen directly on the Autopositive Film master, since it has a matted surface with good 'tooth.' Errors can be corrected or deletions can be made by either chemical eradication or mechanical erasure techniques.

"For Blueprint Reproduction. If a negative-type material, such as blueprint paper, is used as the production medium for the finished photodrawing, the master intermediate must be a negative halftone rather than a positive as previously described. One method which has been used successfully is to mount the photograph or photographs (in the form of prints on paper with an 'A' or 'N' surface) on a regular drawing form of the proper size.

"This is then taken to the draftsman who fills in the legend box and inserts in the photograph and the form any necessary identifying numbers, symbols, or arrows. This is then copied to the same size (1:1) using either Kodalith Autoscreen Ortho Film or a conventional halftone screen and Kodalith Ortho Matte Film, Type 2.

"The prints are then cut out of the intermediate paste-up, and the identical-size halftone negatives, after processing, are mounted in the cutouts with transparent tape. This results in a master which can be used on a standard blueprint machine to make any desired number of distribution prints. The form reproduces in the usual way, and the halftone negative, together with its drafted additions, prints as a screened positive of very good legibility. If desired, a file copy of this assembly can be made on Kodagraph Autopositive Film.

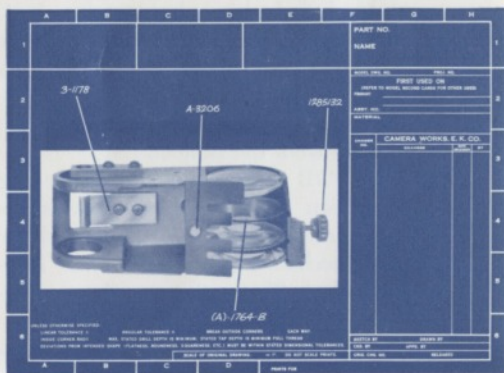
"For Lithographic Reproduction. If the number of distribution prints is of such magnitude that it is decided to reproduce them by offset lithography, any of the above intermediates can be used to expose the printing plate. If the intermediate is in negative form, it can be printed onto regular presensitized offset lithographic plates. If the intermediate is in positive form, it can be printed onto a positive-type presensitized plate."

So, Pete, that's about it. Pretty soon maybe you'll be indispensable, too. Who knows?

Your friend,

JOE

P.S. If you do sell the idea, you can get a complimentary copy of my report which contains full details. Just write to the Sales Service Division of the Eastman Kodak Company, Rochester 4, New York, and ask for Kodak Pamphlet No. P-22 *Photodrawings*.



**EASTMAN KODAK COMPANY**

*Rochester 4, N. Y.*

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# UNSCRAMBLING

## THE TRICOLOR BLUE FILTERS

THERE SEEMS to be some confusion between our Kodak Wratten Filters No. 47 and No. 47B. No. 47 is the one to which the term "C5" was applied in the past and is still applied in some instances. No. 47 is a "wider-cut" filter and transmits more light than the No. 47B. No. 47 is the filter ordinarily recommended as a contrast filter in black-and-white photography. It is also used for printing Type B Ektacolor negatives on Kodak Pan Matrix Film for Dye Transfer. Both filters are suitable for making separation negatives directly from the subject.

No. 47B is recommended for making separation negatives from color transparencies. It is also recommended for photomechanical reproduction from Ektacolor, Type S, negatives. Inci-

dentally, the 47B does almost the same "sharp cutting" as was formerly done only by using the 49 filter (C4). However, the 47B is much more efficient than the 49.

The following table will help to clarify the situation:

Recommended Kodak Wratten Filters for Making Separations			
Material	Red	Green	Blue
New Kodak Pan Matrix Film—from Ektacolor, Type S (6103) or Kodacolor	No. 29	No. 99	No. 47B
New Kodak Pan Matrix Film—from Ektacolor, Type B (6104)	No. 70	No. 61	No. 47

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